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## THEODOR SCHWANN.

THEODOR SCHWANN, the distinguished founder of the animal-cell theory, died on the 11th of January, 1882, in the seventy-second year of his age, having been a Foreign Honorary Member of this Academy for more than thirty years. His death followed closely upon that of Schleiden, the almost equally celebrated founder of the vegetable-cell theory, who died on the 23d of June, 1881. Thus death has associated the two investigators whose labors gave to biology the first impulse in the direction which it has since followed with such triumphant results.

Theodor Schwann was born in Neuss, Düsseldorf, on December 7, 1810. For five years following the completion of his medical studies, he held the position of assistant to Johannes Müller in Berlin. During the next nine years he occupied the chair of anatomy in the Catholic University of Louvain. In 1848 he was called to the University of Liege, where he remained till the time of his death, occupying in succession the chairs of anatomy and physiology. Schwann's classical work, upon which his fame chiefly rests, was published, in 1839, under the title "Microscopical Researches into the Accordance in the Structure and Growth of Animals and Plants." In this work the observations of Schleiden upon vegetables were extended into the animal kingdom, and the cell was recognized as the morphological unit in animals as well as in plants. It is however less from a histological than from a physiological point of view that Schwann's work is to be regarded as marking an era in biological science. The conception of cell life which he formed does not seem to have differed much from that of protoplasmic activity as now understood, but his views in regard to the origin of cells have been entirely supplanted by those of more recent investigators. The doctrine which has for its motto, "*Omnis cellula e cellulâ*," has taken the place of the theory of "organic crystallization" of the cell from a "cytoblastema."

These researches into cell-structure and growth, though by far the most important work of Schwann, do not constitute his only title to fame. He also pointed out the connection between the growth of organisms and the processes of fermentation and putrefaction, thus marking out a line of research which has since been followed with so much success by Pasteur and others. He was likewise the first to study muscular contraction as a physical process, and to express mathematically the force manifested by the muscular fibres at different periods of their contraction. Among his lesser contributions to physiology are

also to be mentioned his observations on the necessity of atmospheric air for the development of the hen's egg ; his investigations into the nature of gastric digestion ; and his experiments on the importance of bile in the animal economy.

Although Schwann had thus at the age of thirty-five years made discoveries which placed him in the foremost ranks of investigators of nature, his after life was almost a blank as far as the production of scientific work was concerned. Since the year 1845 his name appears but twice in the Royal Society's catalogue, once, in 1858, as the author of a report to the Royal Academy of Sciences of Belgium upon the work of Rameaux on the relation between the size of animals and the capacity and movements of the lungs and heart ; and once, in 1870, as the writer of an answer to questions addressed by M. d'Omalius to the physiological members of the Brussels Academy of Sciences in relation to the existence of a special vital force.

No satisfactory reason can be given for Schwann's early withdrawal from the field in which he had won such distinguished honors. The hostility of the Church of which he was a member to biological investigations seems hardly sufficient to account for it, for we find him in 1875 publishing a most indignant denunciation of an attempt made by the Catholic clergy to put him upon record as testifying in favor of the miraculous nature of the phenomena manifested by the notorious Louise Lateau. On this occasion, as Virchow says of him, "His noble and brave heart broke through the snare that had been laid for him, and he had no hesitation in doing honor to truth and in calling lies, lies." His conduct in this affair is, however, scarcely a more striking evidence of his intellectual independence than is afforded by certain passages in his chapter on the Theory of Cells, where he discusses the adaptation to a purpose which is characteristic of organized bodies. On reading these passages one cannot fail to be struck with astonishment that they could have been written by a devout Roman Catholic at a period when evolution, in its application to the organic world, had not yet been formulated as a scientific doctrine.

#### DEAN STANLEY.

ARTHUR PENRHYN STANLEY, who died in the Deanery of Westminster at London on the 18th of July, 1881, was born at Alderley, Cheshire, on the 13th of December, 1815. His father was the rector of Alderley, but early in his son's life became Bishop of Norwich, where he died in 1849. Arthur Stanley was trained in the best spirit